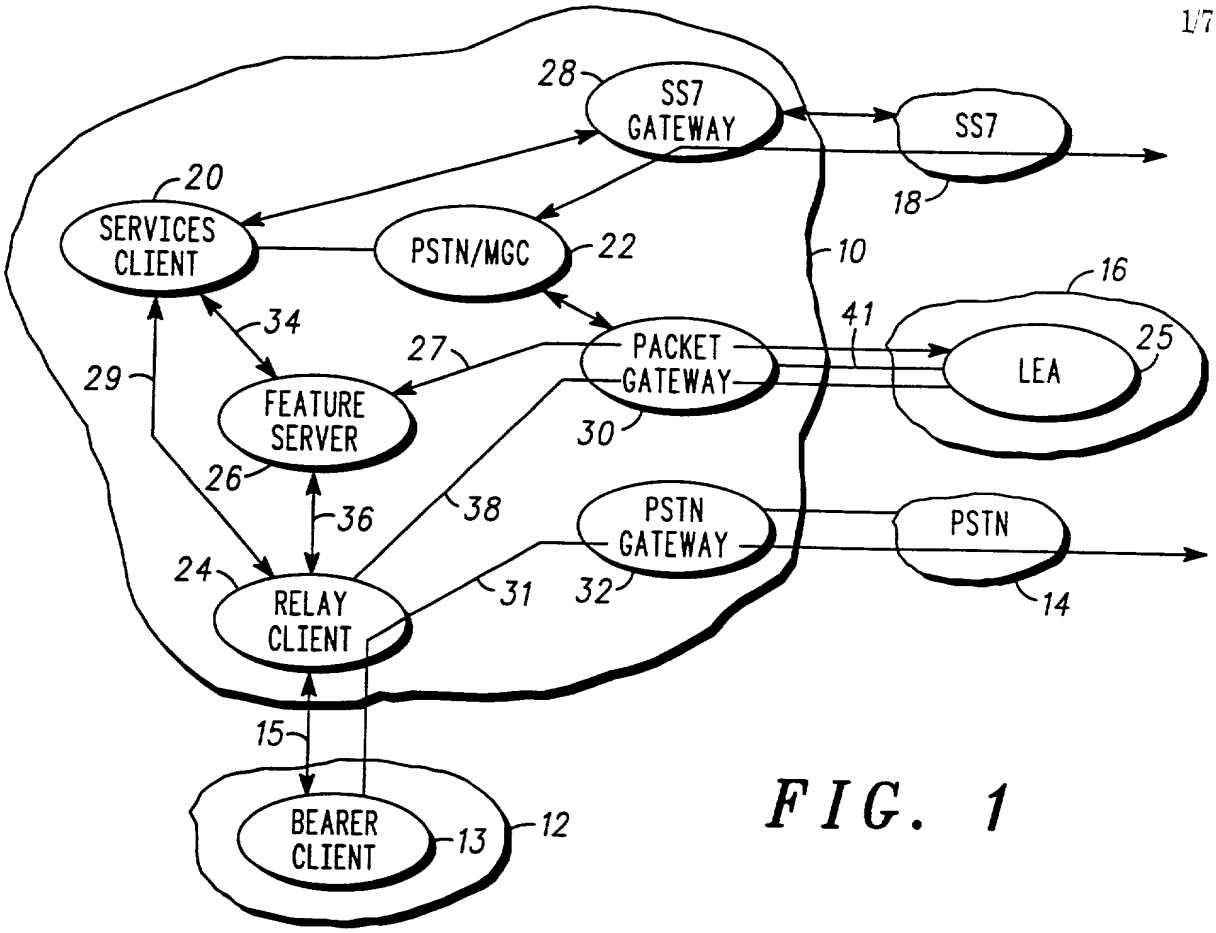
28
SS7 GATEWAY
SS7
18
20
SERVICES CLIENT
PSTN/MGC
22
10
16
41
34
27
PACKET GATEWAY
LEA
25
29
FEATURE SERVER
30
26
36
38
PSTN GATEWAY
PSTN
24
RELAY CLIENT
31
32
14
15
BEARER CLIENT
13
12

FIG. 1

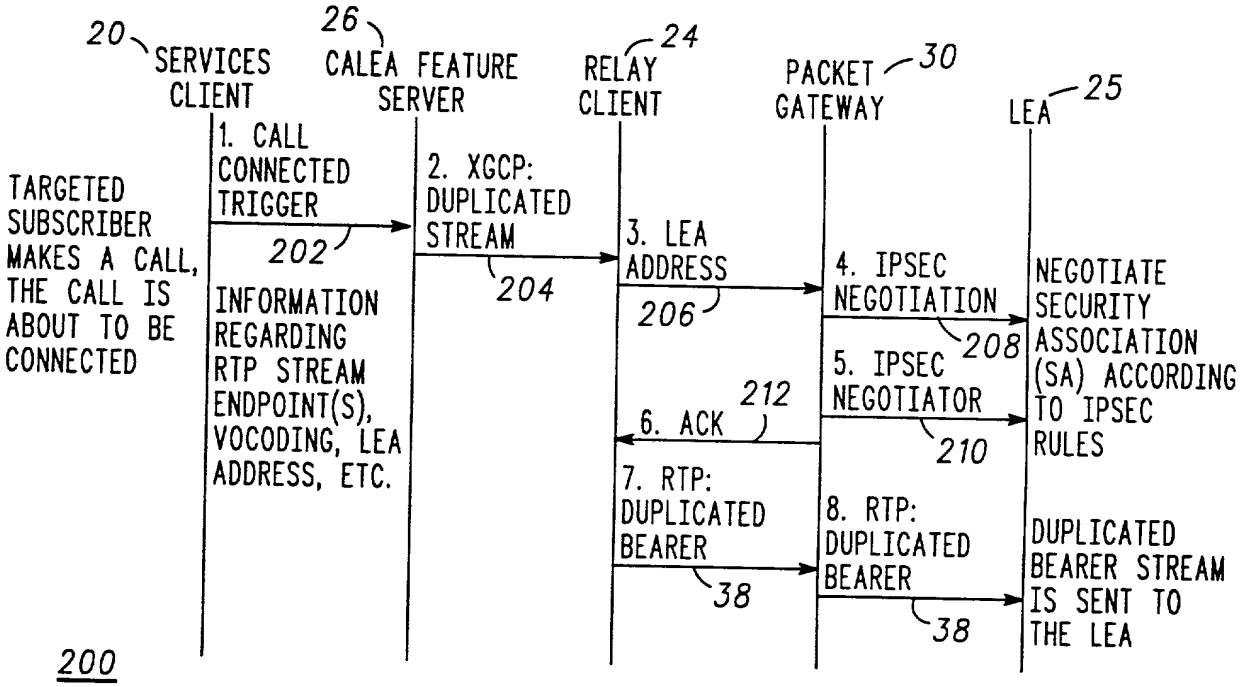
20
SERVICES CLIENT
26
CALEA FEATURE SERVER
24
RELAY CLIENT
30
PACKET GATEWAY
25
LEA
TARGETED SUBSCRIBER MAKES A CALL, THE CALL IS ABOUT TO BE CONNECTED
1. CALL CONNECTED TRIGGER
202
INFORMATION REGARDING RTP STREAM ENDPOINT(S), VOCODING, LEA ADDRESS, ETC.
2. XGCP: DUPLICATED STREAM
204
3. LEA ADDRESS
206
4. IPSEC NEGOTIATION
208
NEGOTIATE SECURITY ASSOCIATION (SA) ACCORDING TO IPSEC RULES
5. IPSEC NEGOTIATOR
210
212
6. ACK
7. RTP: DUPLICATED BEARER
38
8. RTP: DUPLICATED BEARER
38
DUPLICATED BEARER STREAM IS SENT TO THE LEA
200

FIG. 2

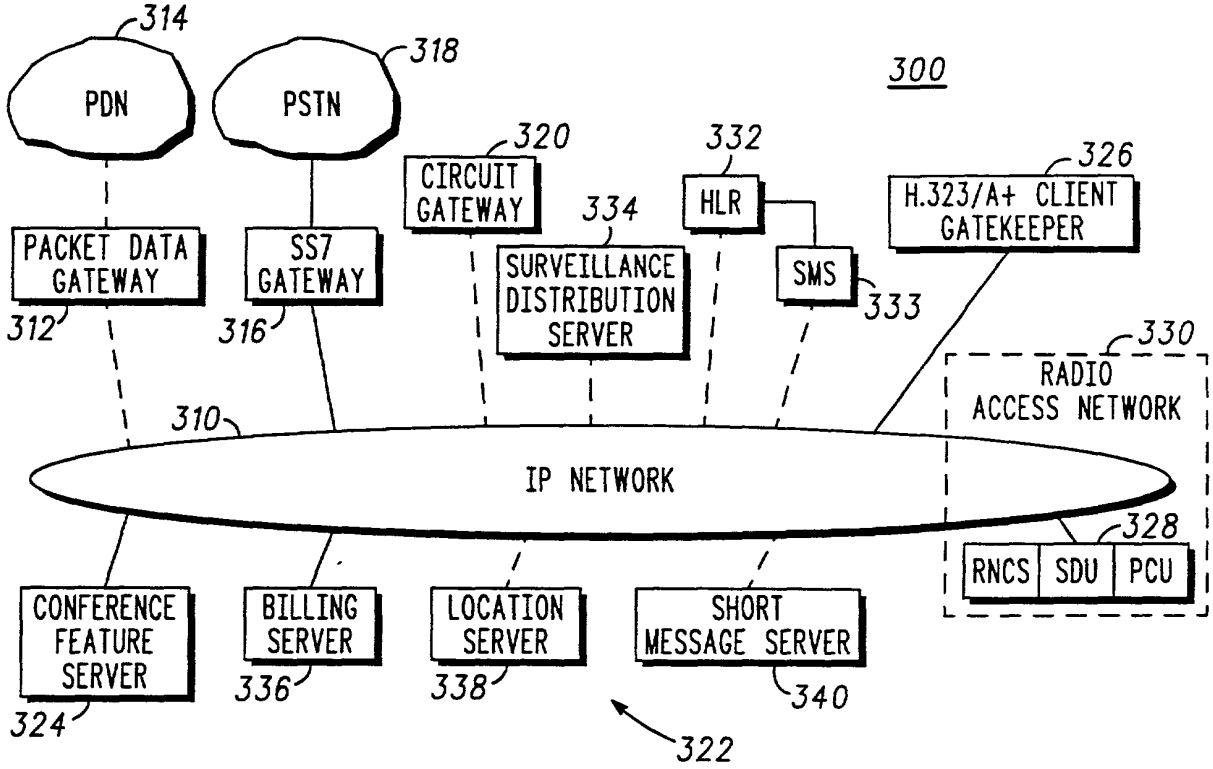
314
PDN
318
PSTN
300
320
CIRCUIT GATEWAY
332
HLR
326
H.323/A+ CLIENT GATEKEEPER
334
SURVEILLANCE DISTRIBUTION SERVER
SMS
333
PACKET DATA GATEWAY
312
SS7 GATEWAY
316
330
RADIO ACCESS NETWORK
310
IP NETWORK
328
RNCS
SDU
PCU
CONFERENCE FEATURE SERVER
324
BILLING SERVER
336
LOCATION SERVER
338
SHORT MESSAGE SERVER
340
322

FIG. 3

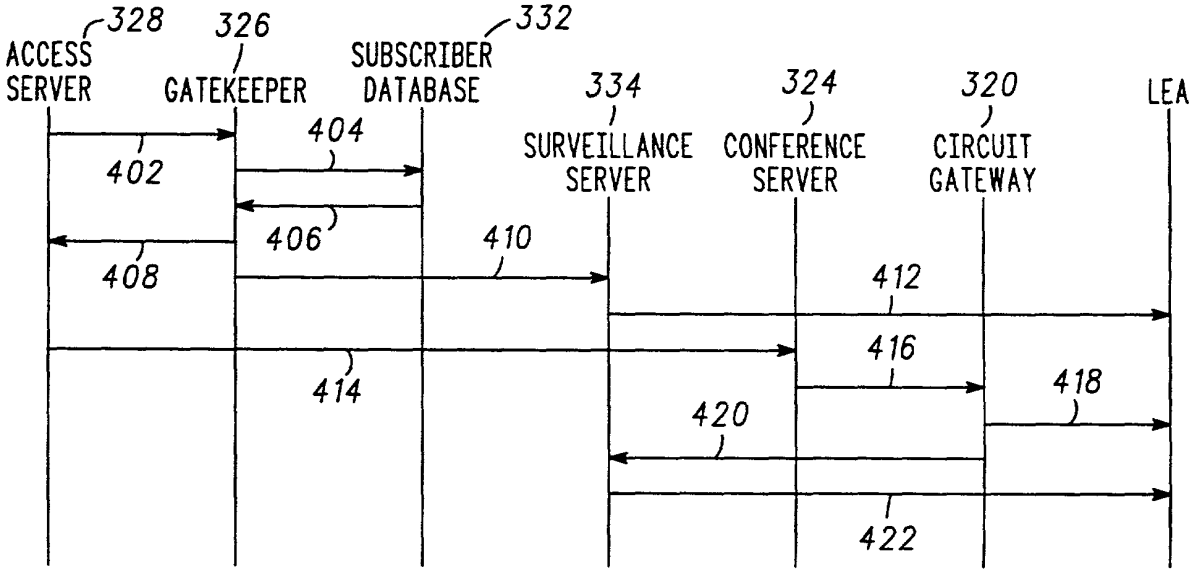
328
ACCESS SERVER
326
GATEKEEPER
332
SUBSCRIBER DATABASE
334
SURVEILLANCE SERVER
324
CONFERENCE SERVER
320
CIRCUIT GATEWAY
LEA
402
404
406
408
410
412
414
416
418
420
422

FIG. 4

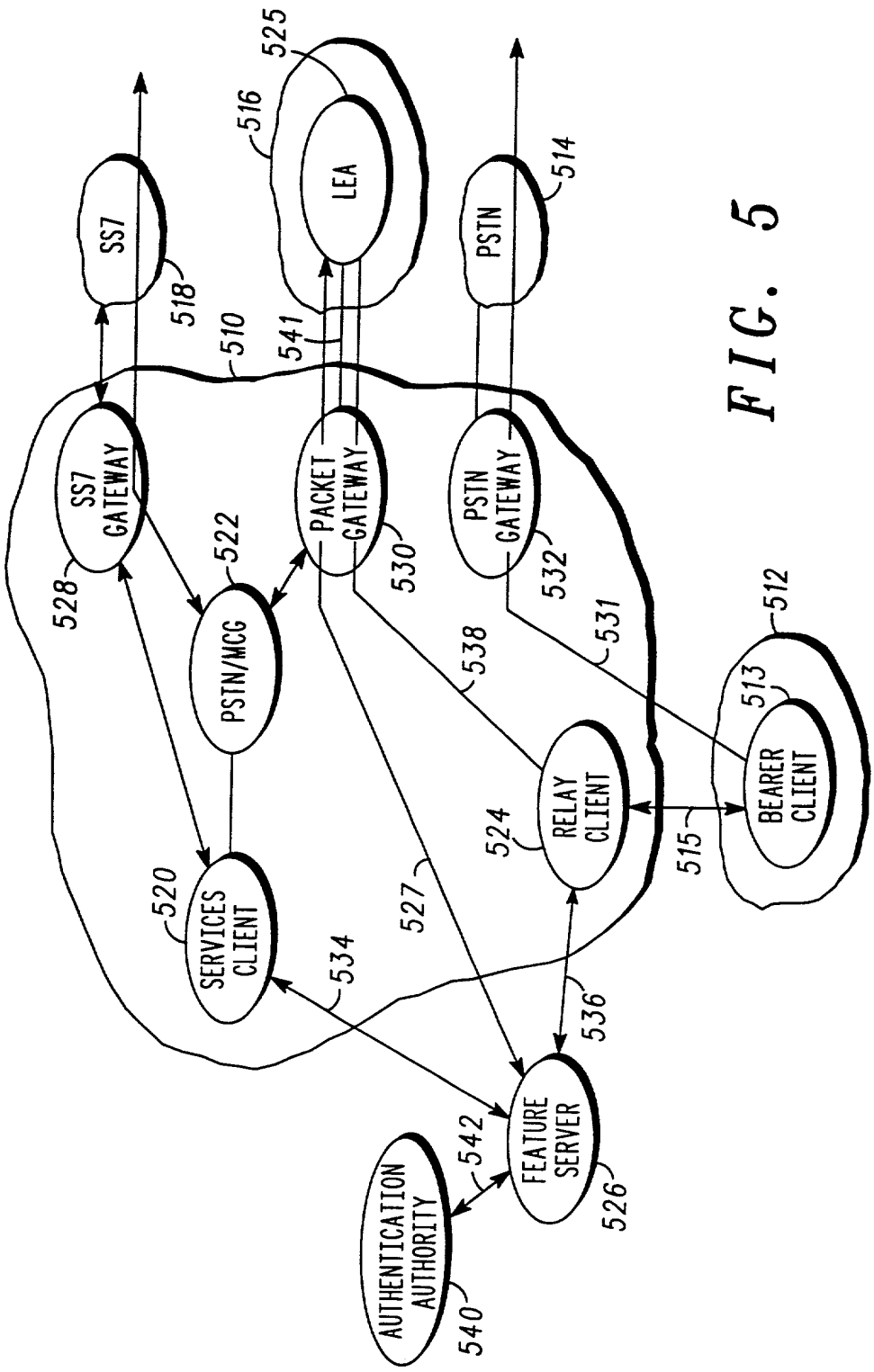
SS7
518
516
525
LEA
PSTN
514
510
541
SS7 GATEWAY
528
PSTN/MGC
522
PACKET GATEWAY
530
PSTN GATEWAY
532
538
531
512
513
BEARER CLIENT
524
RELAY CLIENT
515
520
SERVICES CLIENT
534
527
536
FEATURE SERVER
526
542
AUTHENTICATION AUTHORITY
540

FIG. 5

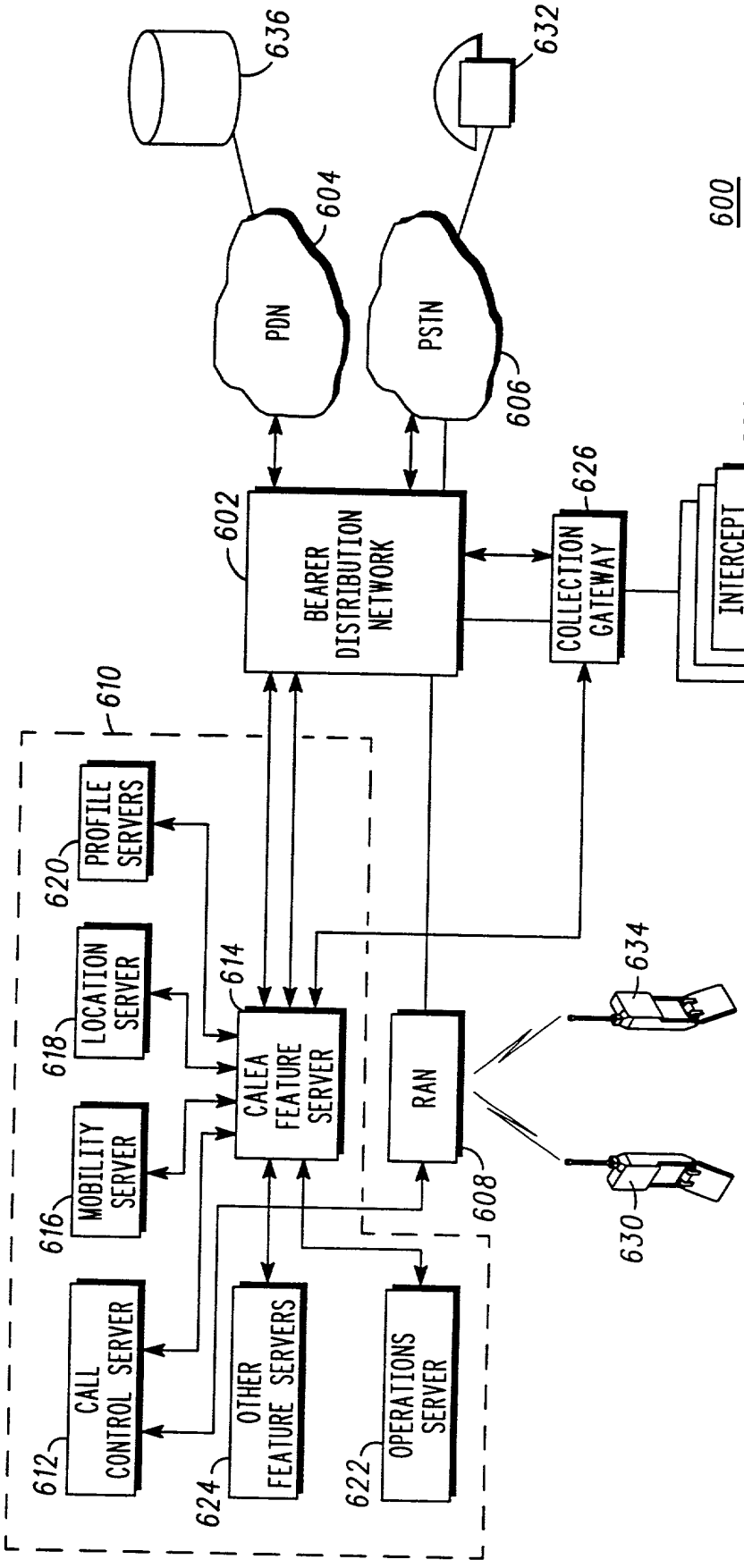
636
632
604
PDN
PSTN
606
602
BEARER DISTRIBUTION NETWORK
626
COLLECTION GATEWAY
628
INTERCEPT ACCESS POINT
600
610
PROFILE SERVERS
620
LOCATION SERVER
618
614
CALEA FEATURE SERVER
RAN
634
MOBILITY SERVER
616
608
630
CALL CONTROL SERVER
612
OTHER FEATURE SERVERS
624
OPERATIONS SERVER
622

FIG. 6

OS 622
CFS 614
WS 630
CCS 612
LS 618
RAN 608
BDN 602
PC 632
CG 626
IAP 628
ADD SUBJECT {IAPCASEID, SDN, [SNAME], [KEY]}
ADD SUBJECT {IAPCASEID, SDN, [SNAME], [KEY]} PERMITS EARLY DETECTION OF RESOURCE SHORTAGE
ADD SUBJECT {SDN, [SNAME], CFS PID} THIS STEP IS REPEATED FOR OTHER SERVERS.
ORIG {SDN, PCDN}
ORIG {SDN, PCDN, CALLID, CELL}
ORIG {SDN, PCDN, CALLID, CELL}
702
704
706
708
710
712

FIG. 7

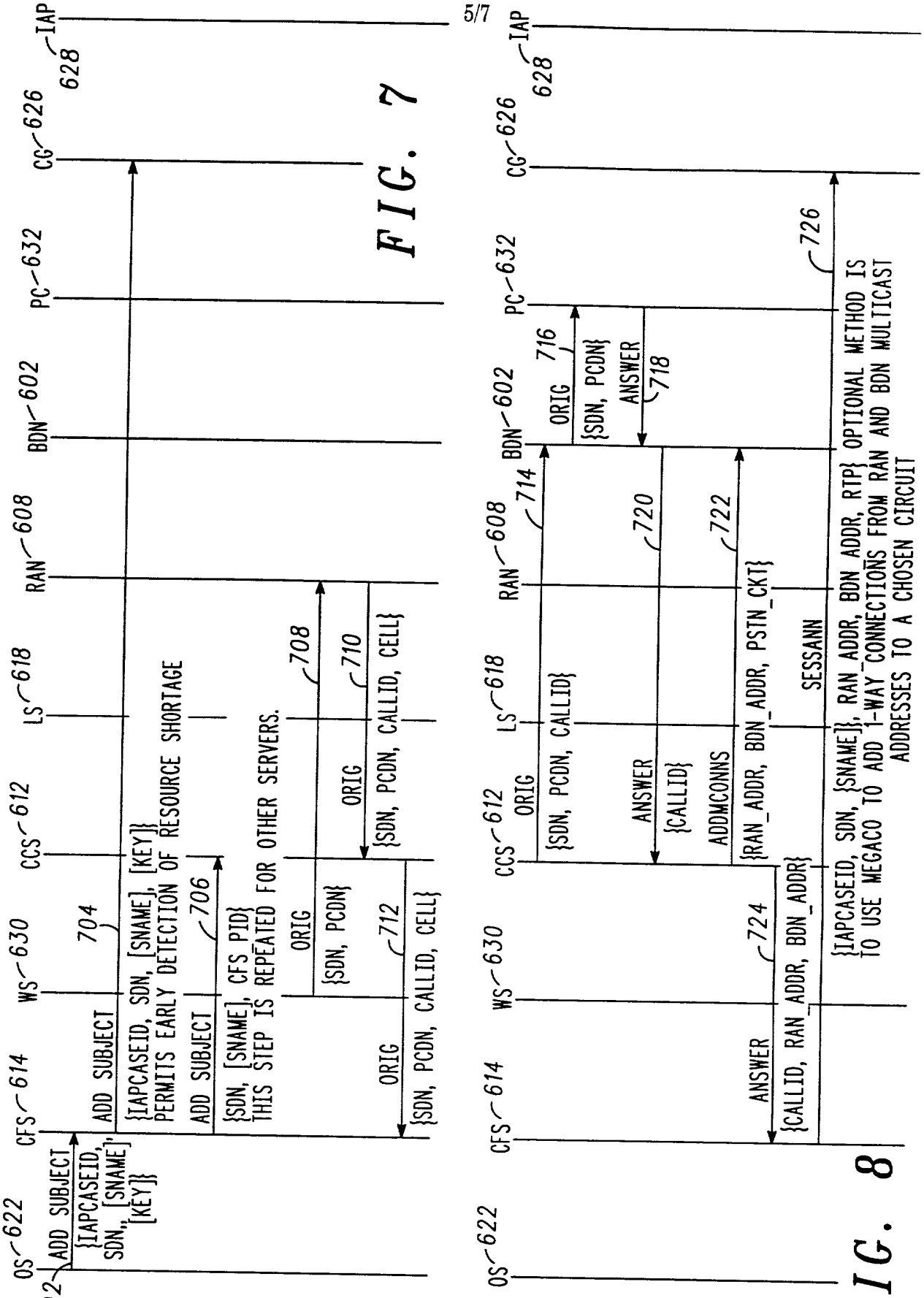
OS 622
CFS 614
WS 630
CCS 612
LS 618
RAN 608
BDN 602
PC 632
CG 626
IAP 628
ORIG {SDN, PCDN, CALLID}
ANSWER {CALLID}
ADDMCONNS {RAN_ADDR, BDN_ADDR, PSTN_CKT}
SESSANN
ANSWER {CALLID, RAN_ADDR, BDN_ADDR}
{IAPCASEID, SDN, {SNAME}}, RAN ADDR, BDN ADDR, RTP} OPTIONAL METHOD IS TO USE MEGACO TO ADD 1-WAY CONNECTIONS FROM RAN AND BDN MULTICAST ADDRESSES TO A CHOSEN CIRCUIT
ORIG {SDN, PCDN}
ANSWER
714
716
718
720
722
724
726

FIG. 8

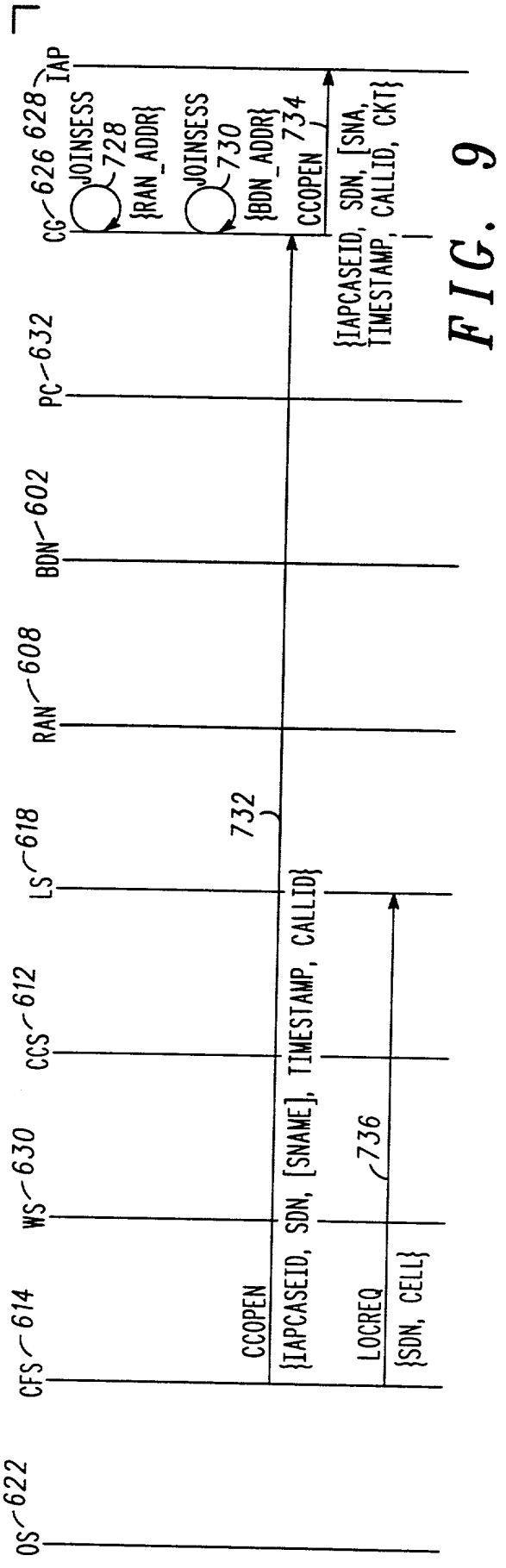
OS 622
CFS 614
WS 630
CCS 612
LS 618
RAN 608
BDN 602
PC 632
CG 626
628 IAP
JOINSESS 728 {RAN_ADDR}
JOINSESS 730 {BDN_ADDR}
CCOPEN 734
{IAPCASEID, SDN, [SNA, TIMESTAMP, CALLID, CKT}
732
CCOPEN
{IAPCASEID, SDN, [SNAME], TIMESTAMP, CALLID}
LOCREQ
736
{SDN, CELL}

FIG. 9

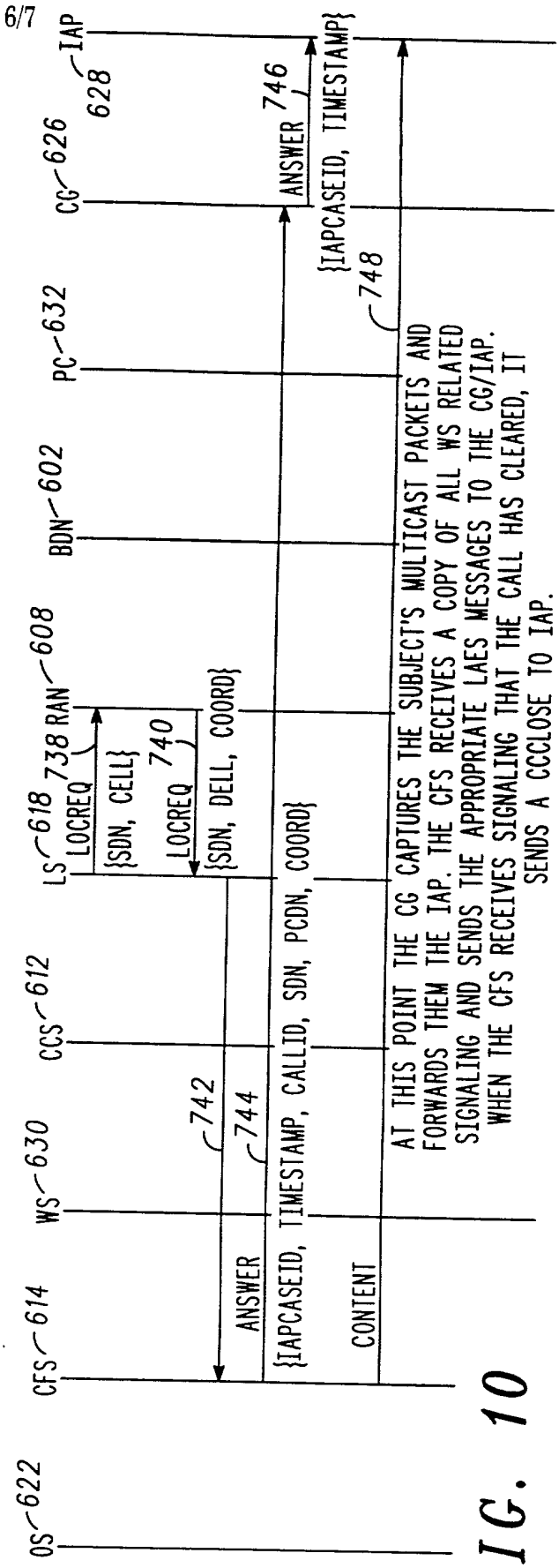
6/7
OS 622
CFS 614
WS 630
CCS 612
LS 618
738 RAN 608
BDN 602
PC 632
CG 626
628 IAP
LOCREQ
{SDN, CELL}
LOCREQ 740
{SDN, DELL, COORD}
742
744
ANSWER
{IAPCASEID, TIMESTAMP, CALLID, SDN, PCDN, COORD}
CONTENT
AT THIS POINT THE CG CAPTURES THE SUBJECT'S MULTICAST PACKETS AND FORWARDS THEM THE IAP. THE CFS RECEIVES A COPY OF ALL WS RELATED SIGNALING AND SENDS THE APPROPRIATE LAES MESSAGES TO THE CG/IAP. WHEN THE CFS RECEIVES SIGNALING THAT THE CALL HAS CLEARED, IT SENDS A CCCLOSE TO IAP.
ANSWER 746
{IAPCASEID, TIMESTAMP}
748

FIG. 10

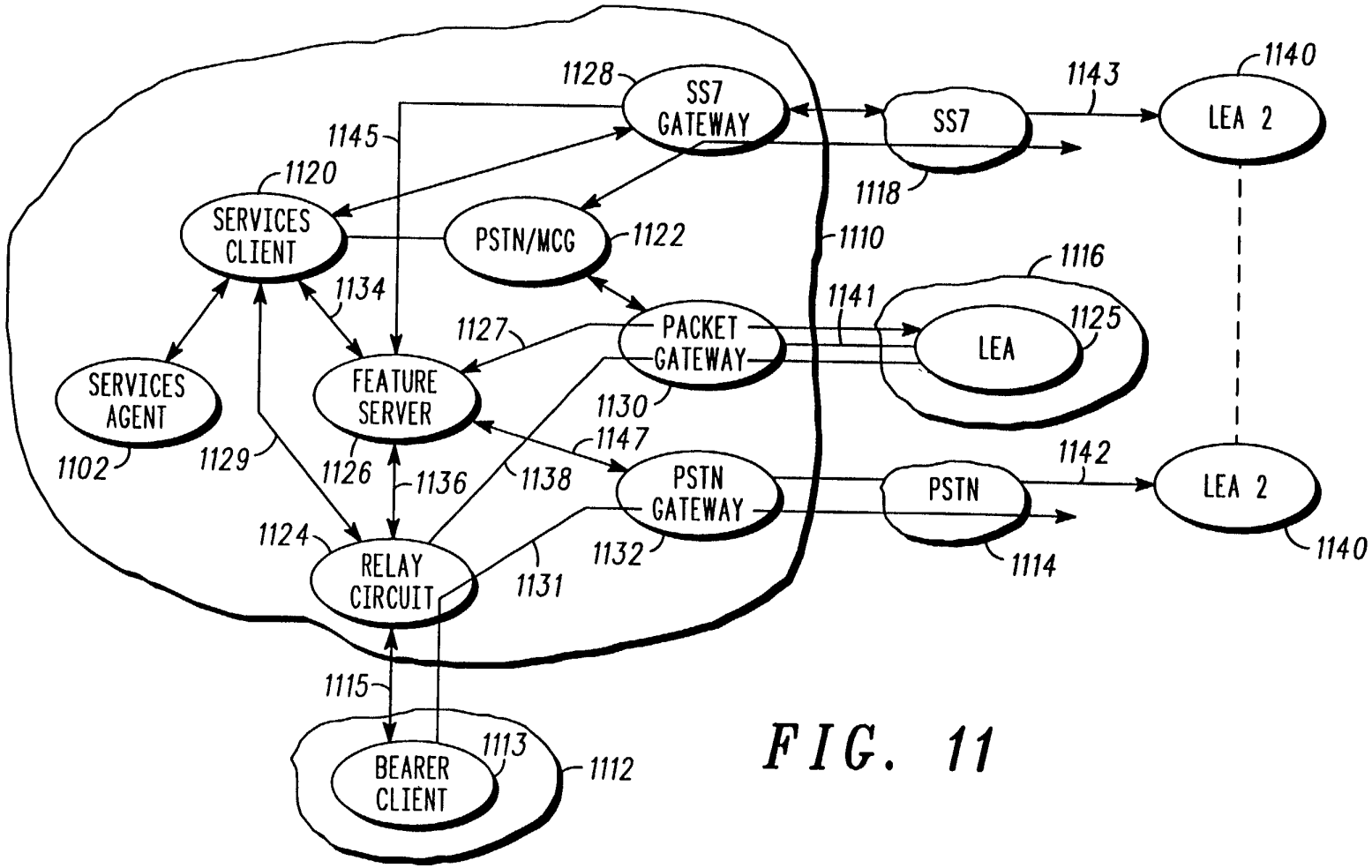
1128
SS7 GATEWAY
1143
SS7
1140
LEA 2
1145
1120
SERVICES CLIENT
PSTN/MCG
1122
1118
1110
1116
1134
1141
1125
LEA
1127
PACKET GATEWAY
SERVICES AGENT
FEATURE SERVER
1130
1147
1102
1129
1126
1136
1138
PSTN GATEWAY
PSTN
1142
LEA 2
1124
RELAY CIRCUIT
1132
1131
1114
1140
1115
1113
BEARER CLIENT
1112

FIG. 11